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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/819,947

03/27/2001

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P134US1

2949

7590

09/21/2004

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EXAMINER

SHAHRIER, SHARIF M

ART UNIT

PAPER NUMBER

2664

DATE MAILED: 09/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/819,947

Applicant(s)

AIRY ET AL.

Examiner

Sharif M Shahrier

Art Unit

2664

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 9,16,29,33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 9:

- **the range** (refers to the number of data blocks) **is determined through a look up table depending upon the number of data blocks** (vague and indefinite).

Regarding claim 16,29,33:

- **estimating a level** (need precise definition) **of up-link traffic;**

determining the current data transmission queue based upon the range and the level of the up-link traffic.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1,3,5,11-16,21,22,24,26-29,30-33,34,36,41 are rejected under 35 U.S.C. 102(e) as being anticipated by Wallentin (US 6,594,238).

Regarding claims 1, 21, 30, 34, and 41 Wallentin teaches a wireless data communication system comprising of a base station, and a plurality of subscriber units connected via a radio access network.

Further, in regard to claims 1, 30, 34 and 41:

- at least one subscriber unit transmitting a request (col 7 ln 57) to send data blocks to the base transceiver station, the request including a data transmission queue size value (col 6 ln 1-3 & col 7 ln 61 parameter in conn. Request);

Further, in regard to claims 1, 21, 30 and 41:

- updating at the base transceiver station (updating is implicit, means replace old value with new value), a base user queue size estimate that corresponds to the one subscriber unit that transmitted the request to send data, the base user queue size estimate being based upon the data transmission queue size value (col 6 ln 3-5);

Further, in regard to claims 1, 21, 30, 34 and 41:

- the base transceiver station generating a schedule that includes time slots ( col 1 ln 39, GSM uses TDMA slots) and frequency blocks (col 4 ln 37-38) in

which the requested data blocks are to be transmitted from the one subscriber unit to the base transceiver station;

Further, in regard to claims 1, 21, 30, 34 and 41:

- the at least one subscriber unit transmitting the data blocks the at least one subscriber unit requested to send according to the schedule (col 1 ln 39, GSM using TDMA schedule), each transmitted data block comprising encoded information (col 6 ln 3-5, encoded into uplink packets) representing a current data transmission queue size value;

Further, with regard to claims 1, 21, 30 and 41:

- updating the base user queue size estimate (updating is implicit, means replace old value with new value) based upon the encoded information;

Further in regard to claims 1, 21, 30, 34 and 41:

Art Unit: 2664

- and the base user queue size estimate influencing future schedules generated by the base transceiver station (col 6 ln 5-15 Tx on shared or dedicated channel based on "threshold" amounts to "influencing").

Regarding claims 3,22,36 Wallentin teaches:

- the data blocks comprise at least portion of a data unit (*prior knowledge (well known)*: bits,bytes), and each data unit comprises encoded information representing the current data transmission queue size value (col 6 ln3-5 encoded into uplink packets).

Regarding claims 5, 24:

- encoding the information within a plurality of bits within headers of the data units (*prior knowledge (well known)*: parameter values are generally encoded in headers [e.g. Fig. 4 & 5 LoGalbo US 2002/0093928] with bits).

Art Unit: 2664

Regarding claim 26:

- wherein a range of data blocks is encoded with the plurality of bits of headers of the data units (*prior knowledge (well known)*: "range" refers to a no. of data blocks; headers comprise of data blocks [e.g. Fig. 4 & 5 LoGalbo US 2002/0093928] encoded with bytes, bits).

Regarding claim 11:

- decoding received data blocks to determine the current data transmission queue value (*prior knowledge (well known)*: encoded queue value is decoded (extracted) from its field in header after delineation).

Regarding claim 12,27,31:

- decoding received data units to determine the current data transmission queue value (see *rej. Cl. 11*), each data block comprising at least a portion of one of



the data units (*prior knowledge (well known)*): each field is at least 1 byte, usually more).

Regarding claim 13:

- receiving a number that represents a number of data blocks to be transferred (col 6 ln 1-2 msg. length para. encoded in packet).

Regarding claim 14,28,32:

- receiving a range of data blocks (*prior knowledge (well known)*): data packet comprises a number of data blocks);  
determining the current data transmission queue depending upon the received range and an up-link transmission mode (*prior knowledge (well known)*):  
recd. range refers to total number of data blocks recd (X). Uplink transmission node has header size (Y) e.g. Fig. 5 LoGalbo. Thus, Y-X gives gives size of transmission queue (payload)).

Regarding claim 15:

- **range is decoded** (*prior knowledge (well known)*): Cl. 7 was rejected, thus decode (extract) must be rejected using similar reasoning) **from a plurality of bits located within headers of the data units.**

Regarding claims 16,29,33:

- **estimating a level of up-link traffic** (Fig. 5 elmt 54, function of threshold);  
**determining the current data transmission queue based upon the range and the level of the up-link traffic** (col 6 ln 1-6 & Fig. 5).

### ***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2664

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 2,35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin, in view of Ramanathan (US 6,577,613).

Regarding claims 2 and 35, Wallentin discloses all aspects of the rejected base claims.

Wallentin does not explicitly disclose transmitting a request to send during a contention slot.

However, Ramanathan teaches:

- the request to send (col 4 ln 34-35) data is transmitted during a contention slot (col 4 ln 29-30) indicated within a schedule previously transmitted by the base transceiver station.

It would have been obvious for one of ordinary skill at the time of invention

Wallentin's system supplemented by transmission of RTS during a contention slot in order to reserve bandwidth.

7. Claim 4,6-8,23,25,27,37,38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin, in view of LoGalgo (US 2002/0093928).

Art Unit: 2664

Regarding claims 4,23,27 and 37, Wallentin discloses all aspects of the respective base claims.

Wallentin does not disclose number of data units dependent on transmission mode.

However, LoGalgo discloses:

- the number of data units within each data block is dependent on a transmission mode (Fig. 4 & 5 uplink and downlink headers have different block sizes).

It would have been obvious for one of ordinary skill at the time of invention

Wallentin's system supplemented by different frame headers for uplink and downlink transmissions.

Regarding claims 6,25,38 Wallentin discloses all aspects of the respective base claims.

Wellintin further discloses:

- calculating a number of data blocks to be transmitted, the number of data blocks being dependent upon ..... and the current data transmission queue value (col 6 ln 1-5).

Wallentin does not disclose number of blocks being dependent upon the transmission mode.

However, LoGalgo discloses:

- calculating a number of data blocks to be transmitted, the number of data blocks being dependent upon the transmission mode (Fig. 4 downlink, Fig. 5 uplink, headers have different sizes) and .....

It would have been obvious for one of ordinary skill at the time of invention Wallentin's system supplemented by different frames for uplink and downlink for better adaptability of channel characteristics.

Regarding claim 7, Wallentin discloses all aspects of the respective base claims.

Wallentin does not disclose encoding information within headers.

However, LoGalgo discloses:

- encoding the information within a plurality of bits within headers of the data units (parameter values are generally encoded in headers [Fig. 4 & 5] with bits).

It would have been obvious for one of ordinary skill at the time of invention Wallentin's system supplemented by encoding of (para. + control) information in headers, to separate it from payload.

Regarding claim 8, Wallentin discloses all aspects of the respective base claims.

Wallentin does not disclose encoding information within headers.

However, LoGalgo discloses:

- wherein a range of data blocks is encoded with the plurality of bits of headers of the data units ("range" refers to a no. of data blocks; headers comprise of data blocks [Fig. 4 & 5] encoded with bytes, bits).

It would have been obvious for one of ordinary skill at the time of invention Wallentin's system supplemented by encoding of (para. + control) information in headers, to separate it from payload.

8. Claim 39,40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin, in view of Ramanathan, and further in view of LoGalgo.

Regarding claim 39,40, Wallentin discloses all aspects of the respective base claims.

Wallentin does not disclose encoding information within headers.

However, LoGalgo discloses:

- wherein a range of data blocks is encoded with the plurality of bits of headers of the data units ("range" refers to a no. of data blocks; headers comprise of data blocks [Fig. 4 & 5] encoded with bytes, bits).

It would have been obvious for one of ordinary skill at the time of invention

Wallentin's system supplemented by encoding of (para. + control) information in headers, to separate it from payload.

9. Claim 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin, in view of LoGalgo, and further in view of Nichols (US 6,608,816).

Regarding claim 9, Wallentin and LoGalgo combined discloses all aspects of the base claims.

Wallentin and LoGalgo does not disclose lookup table.

However, Nichols discloses:

- **the range** (refers to the number of data blocks) **is determined through a look up table depending upon the number of data blocks** (col 7 ln 47-48).

It would have been obvious for one of ordinary skill at the time of invention

Wallentin's system supplemented by lookup table for fast, on the fly determination of the range.

10. Claim 17, 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin, in view of Lenzo (US 6,587,444).

Regarding claim 17, Wallentin discloses all aspects of the respective base claims.

Wallentin further discloses:

- **the scheduling being influenced by the base user queue size value** (col 6 ln 5-13).

Wallentin does not disclose a map depicting time slots and frequency block.

However, Lenzo discloses:

- **the scheduling includes generating a map, the map depicting time slots and frequency blocks** (Fig. 3B).



It would have been obvious for one of ordinary skill at the time of invention Wallentin's system supplemented by a scheduling system with both time-slot and frequency blocks for adaptability.

Regarding claim 18, Wallentin discloses all aspects of the respective base claims. Wallentin does not disclose a map depicting uplink and downlink transmissions. However, Lenzo discloses:

- the map includes down link transmission from the base transceiver station to the one subscriber unit, and up link transmission from the one subscriber unit to the base transceiver station (Fig. 2B).

It would have been obvious for one of ordinary skill at the time of invention Wallentin's system supplemented by a uplink and downlink transmission segment for TDD (time-division duplex) communications.

Regarding claim 19, Wallentin discloses all aspects of the respective base claims. Wallentin does not disclose transmittal of the map to subscriber units once per time frame.

However, Lenzo discloses:

- the map is transmitted to the plurality of subscriber units once per frame of time (Fig. 2B, once every 24 timeslots, equiv. to one time frame).

It would have been obvious for one of ordinary skill at the time of invention Wallentin's system supplemented by transmittal of map once every time frame, so schedule may be changed once every time frame.

Regarding claim 20, Wallentin discloses all aspects of the respective base claims.

Wallentin does not disclose a map including timeslots and frequency blocks for both uplink and downlink transmissions.

However, Lenzo discloses:

- the map includes time slots and frequency blocks for down link transmission from the base transceiver station to each of the plurality of subscriber units, and time slots and frequency blocks for up link transmission from each of the plurality of subscriber units to the base transceiver station (Fig. 3B).

Art Unit: 2664

It would have been obvious for one of ordinary skill at the time of invention

Wallentin's system supplemented by a uplink and downlink transmission segment for FDD (frequency-division duplex) communications.

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wallentin and LoGalbo, and further in view of Lenzo.

Regarding claim 10, Wallentin and LoGalbo disclose all aspects of the rejected base claims.

But they do does not disclose a schedule comprising of multiple slots; transmission mode changing from frame to frame.

However, Lenzo teaches:

- the generated schedule includes a finite number of time slots (Fig 2B) that in combination form a frame, and the transmission mode can change from frame to frame (Fig. 2B slots 0..11 downlink, 12..23 uplink).

It would have been obvious for one of ordinary skill at the time of invention to add Lenzo's system for adaptability and contention free access to the entire bandwidth for a fraction of time.


### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sharif M Shahrier whose telephone number is (571) 272-3136. The examiner can normally be reached on 8:30-5:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ricky Ngo can be reached on (571) 272-3139. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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